Best Practices for Understanding Recreational Fishers

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Abstract In this closing chapter of our edited book, we summarize what we believe are best practices for understanding recreational fishers. Fishers are an integral part of the recreational fishery social-ecological system, and we emphasize the importance of placing them in that context. We begin with an overview of the process of developing a project and conclude with some broad suggestions for standardising approaches to gather data from and about fishers, mainly focusing on social science methods. Throughout, we emphasize tactics to promote the development of inter- and transdisciplinary tools and processes, as a means of more fully understanding the full social-ecological system. This chapter draws from methodological details and suggestions developed throughout this book; we describe how they work together but point the reader to these specific chapters to further understand how to build interdisciplinarity into research and management.

Keywords Best practices · Disciplinary teams · Experimental approaches · Interdisciplinary teams · Social-ecological systems

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1 Introduction

This book (Pope et al. 2026) focuses on understanding recreational fishers for the sake of improving their management. Recreational fisheries are complex adaptive social-ecological systems (Arlinghaus et al. 2017). Such systems include multiple feedbacks and interactions between the ecological subsystem (the fish, the habitats, and the broader ecosystem) and the social subsystem (the fishers, organisations of actors and broader society), as well as interactions between each of these subsystems and the management and governance subsystems (managers, user communities, agencies and policy makers) at various scales (Ward et al. 2016; Arlinghaus et al. 2017). Recreational fishers are a key component of the social-ecological system of recreational fisheries because of their multiple connections between all subsystems. In fact, fishers play at least four important roles within the social-ecological system (Brown 1987; Ward et al. 2016): (1) they affect and are affected by the current state of the fishery and by potential future changes to the fishery; (2) their participation and well-being (e.g. satisfaction, utility) are typically key objectives of fishery management and thereby part of the objectives and targets of the governance subsystem; (3) they have information on the state of the fishery and ecosystem; and (4) they fundamentally shape the state of the fishery or the chosen management actions. These four overlapping roles underscore the importance of understanding and working with recreational fishers in both research and management if we are to understand recreational fisheries as complex adaptive systems (Hunt et al. 2013). Other important behavioural dimensions of recreational fisheries are the behaviours of individual decision-makers, for example, those in fish and wildlife agencies or in angler communities (Fujitani et al. 2020) and the broader policy setting, which affects decision-maker structures and agency (Boucquey et al. 2026).

In this closing chapter of our edited book (Pope et al. 2026), we summarise what we believe are best practices for understanding recreational fishers. We begin with an overview of the process of developing a project and conclude with some broad suggestions for standardising approaches to gather data from and about fishers, mainly focusing on social science methods. That said, the methodological details of the suggestions we provide are to be found in the detailed chapters that we reference from our book.

Any change to a recreational fishery will have a reciprocal impact on recreational fishers that may affect the level of well-being derived from their experiences and, in turn, impact future fishers' behaviours and intentions to return to the fishery (Carpenter and Brock 2004, Ward et al. 2016, Post et al. 2026). Recreational fishers derive non-monetary benefits from multiple aspects of fishing, including catch-related attributes such as species available, fish sizes, and catch rates, and non-catch related attributes such as access, scenic beauty, amenities available, the social aspects of fishing and certain regulations (i.e. restrictions on free harvest choice) (Hunt et al. 2019). Their reactions to local changes are thus different from those expected from commercial fisheries or natural predators (Johnson et al. 2009; Matsumura et al. 2019; Post et al. 2026). Recreational fishers assess the expected quality of a local experience within the social context of their trip (e.g. with whom they might fish) to decide where and when to fish among a series of alternatives (Hunt et al. 2019). The outcomes of these experiences compared to their initial expectations contribute to their levels of satisfaction (TenHarmsel et al. 2019; Birdsong et al. 2021; Landon et al. 2026) and to fisher utility more generally (Hunt et al. 2019; Melstrom et al. 2026), which in turn contributes to their decisions to return, to discuss their fishing experiences in social networks, or to set or reset expectations and norms about management (Arlinghaus and Mehner 2005, van Poorten et al. 2011; Matsumura et al. 2019). Measures of well-being from fishing and fisheries are often quantified in resource economics as utility (Melstrom et al. 2026) or in social psychology as satisfaction (Birdsong et al. 2021). These measures may serve as integrative management objectives because they integrate ecological changes through the impact on catch rates and angler well-being (Johnson et al. 2009). That said, the fact that there are non-catch-related pleasure components may result in fishing effort remaining stable or changing in less predictable ways, which can contribute to collapse (Post et al. 2002; Golden et al. 2022).

In many recreational fisheries, there is the objective of providing satisfactory experiences to fishers (Krogman et al. 2026), which is often complemented by another, more ecological objective of maintaining local populations (Cowx et al. 2010). Whereas fishers satisfy many of their expectations for non-catch-related attributes through their choices of where and when to fish (e.g. environmental quality, scenery), catch-related outcomes (e.g. catch numbers, harvest opportunities and size of fish in the catch) are much more variable and under less control by the person (Arlinghaus et al. 2007), and more closely linked to fish stock-directed management actions and the collective mortality exerted by the pool of recreational fishers as a whole (van Poorten and Camp 2019). Properly understanding the dynamics of recreational fisher satisfaction and well-being more generally is challenging and requires proper survey tools (Vaske et al. 2026a, b; Venturelli et al. 2026; Kyle et al. 2026; De Kerckhove et al. 2026). Methods to study individual-level well-being outcomes are available in both the social-psychological approach to recreational fisheries (Birdsong et al. 2021; Landon et al. 2026) and in microeconomic study approaches (Melstrom et al. 2026). However, more qualitative research approaches are also suited to study well-being aspects of communities and of individuals that are surveyed (Boucquey et al. 2026; Golebie et al. 2026; Kochalski et al. 2026).

Recreational fishers have a unique understanding and perspective of fisheries, both individually and in aggregate (Aminpour et al. 2020; Löki et al. 2023). Fishers often have first-hand knowledge of catch rate and size structure; they observe the states of water quality and habitat, and they comprise a vast network of information gatherers and sharers that help to determine where and when to fish (Eden and Bear 2011). Their perspectives can provide information across the landscape, which can be tremendously valuable for management agencies that may have dozens to hundreds of individual fisheries to monitor (Venturelli et al. 2026). However, these fishery-dependent data are not without bias, and they require a careful understanding of the cognition of fishers to recognize their motivations and constraints for reporting accurately, or even reporting at all (Venturelli et al. 2016). How to collect these data, while being respectful of fishers' time and helping them feel invested in the fisheries and the outcomes, remains an elusive challenge (Vaske et al. 2026a, b; Venturelli et al. 2026; de Kerckhove et al. 2026). Fortunately, these so-called non-probabilistic survey types (Howarth et al. 2024) co-exist together with a large family of probabilistic survey types (Vaske et al. 2026a, b; Kyle et al. 2026), qualitative (Kochalski et al. 2026; Thurstan et al. 2026) and mixed-mode approaches (Golebie et al. 2026), as well as experimental approaches (van Putten et al. 2026; Mackay et al. 2026). Each method comes with its own issues, and many lessons are available in this book (Pope et al. 2026) to improve fisher engagement and information quality (Hunt 2023).

Recreational fishers also impact the state of fisheries by affecting habitats, wildlife, fish abundance, size structure, and behaviours of exploited fishes (Post et al. 2002; Arlinghaus et al. 2007; Lewin et al. 2006). Understanding recreational fisher behaviour is crucially important to understanding these impacts (Johnson et al. 2009; Hunt et al. 2013; Ward et al. 2016; Matsumura et al. 2019). These impacts may be direct, through harvest, or incidental ("cryptic;" Coggins et al. 2007) mortality as well as behaviourally as fish adjust their behaviour to the effort of recreational fishers or to catch-and-release (Arlinghaus et al. 2016b). Incidental impacts include mortality of released fish, whether the release is mandated (e.g. size-based or possession limits) or voluntary (Arlinghaus et al. 2007), along with impacts resulting from the release of non-native fishes from bait buckets (Johnson et al. 2009). Other indirect impacts include habitat degradation and litter (Watson et al. 2022; O'Toole et al. 2009), crowding that may affect the well-being of fishers (Olaussen 2009), nutrient inputs (Niesar et al. 2004), and possible impacts to aquatic and riparian biodiversity (Schafft et al. 2021). The ways in which fishers interact with the resource also vary over time, with changes in social and personal norms and technology affecting how people fish (Cooke et al. 2021). For example, changes in the propensity for fishers to voluntarily release fish have increased dramatically for some species and fisheries (e.g. Myers et al. 2008), but not for others (Cooke et al. 2017). The practice of voluntarily releasing fish can have direct benefits to size structure, with larger fish increasingly being released (Rypel et al. 2016), but it may also cause stunting if populations suffer from density-dependent population control and populations become essentially unexploited release rates approach 100% (Sass and Shaw 2019). Novel sonar technology is altering the way recreational fishers are able to locate fish, which can increase fishing pressure and lead to conflicts among people over limited resources (Cooke et al. 2021). Understanding and managing the impacts of fishers on the resource can be addressed through fisheries ecological science (Post et al. 2026), including looking back towards past developments through the lens of historical ecology (TenHarmsel et al. 2021; Thurstan et al. 2026).

Whereas resource economists focus almost exclusively on measuring how changes within a fishery influence the benefits that fishers obtain from fishing (Melstrom et al. 2026), social psychologists (Landon et al. 2026) and behavioural economists (Mackay et al. 2026) examine more closely the mechanisms by which fishers behave, and political ecologists (Boucquey et al. 2026) focus on the power structures and more fundamental overarching relationships that fishers have with other people and non-human actors within a social-ecological system. Each of these different disciplinary perspectives approaches the understanding of fishers with different beliefs about realities (ontology) and ways to generate legitimate knowledge (epistemologies, Hunt 2023) that in turn lead researchers to produce knowledge using different quantitative, qualitative, or mixed methods approaches (Kochalski et al. 2026; Golebie et al. 2026). Social science approaches to understanding recreational fishers have historically developed in isolation of each other, creating academic silos and limited cross-referencing (Fenichel et al. 2012; Hunt et al. 2013)—an issue that the present book wants help overcome (Pope et al. 2026). The opportunities for integration across disciplines are ample. For example, most choice models developed by resource economists to understand economic values and preferences of recreational fishers constitute behavioural models of how fishers respond to attributes that characterize a fishery, which can be linked to sub-models of fish population dynamics via effort dynamics (Johnson et al. 2009; Hunt et al. 2013; Matsumura et al. 2019; Jensen et al. 2026). Similarly, qualitative and quantitative information that describe power structures and incentives to behaviour that developed from political ecology, microsociology or social-psychology are critical for a more holistic understanding of the entire system and can also be used to inform the behaviour of agents (managers or fishers) in coupled models (Jensen et al. 2026).

Numerous ways exist to collect data about fishers; however, up to the present day, many collection efforts continue to follow disciplinary lines. Within fisheries management, an ecological perspective dominates, with researchers primarily gathering data to inform fish ecological models and to test ecological theory. Therefore, most of the information about recreational fisher behaviour, at least in North America, is still gathered by management agencies through creel surveys (i.e. in-person interviews at fishing sites; de Kerckhove et al. 2026) and other surveys primarily aimed at estimating catch, effort, and harvest (Post et al. 2026). This neglects that through a slight modification of the survey approach, a much richer variety of information can be gleaned about the human dimensions of recreational fisheries related to values, beliefs, attitudes, or norms (Ditton and Hunt 2001; Nieman et al. 2021). Some researchers are starting to experiment with new means of gathering information from fishers, such as working directly with smartphone apps designed for recreational fishers, mining data across a variety of online platforms (Venturelli et al. 2026), and even creating large databases of creel data to leverage cross-jurisdictional learning (Sievert et al. 2026). In conjunction with these new and exciting opportunities, there are opportunities for developing new tools and techniques—rooted in both disciplinary and interdisciplinary efforts and increasingly relying on experiments (van Putten et al. 2026)—to elicit information from recreational fishers to better understand fishers' behaviours and outcomes, ultimately for the betterment of fisheries management.

2 Interdisciplinary Integration in Practice

Some fisheries questions or problems can and will always be addressed from a single disciplinary perspective (Arlinghaus et al. 2014). For example, if a researcher or management agency is interested in learning about the diversity of fisher types present in a local fisher population, a probabilistic fisher survey informed by social psychology is reasonable. Other times, however, it becomes obvious that researchers and managers may want to consider addressing certain fisheries problems or research questions from multiple disciplinary perspectives. For example, information needed to plan fisheries management across multiple lakes linked through mobile recreational fisheries in a landscape typically encompasses both ecological and social dimensions jointly, and importantly the interaction of the two, as one needs to understand how different policies might affect the landscape patterns of movements across scales (Carpenter and Brock 2004, Post 2012; Mee et al. 2016). This approach has been dominant since the 1970s, after "human dimensions" developed as a field in recreational fisheries. Yet, knowledge generated through multidisciplinary approaches do not necessarily integrate well with each other, may be overlooking procedural aspects of decision-making where stakeholders are marginalized and may in fact reinforce academic silos (Arlinghaus et al. 2017). Such approaches can also be insufficient to solve specific fisheries problems that have a greater complexity and are characterized by strong feedbacks between the ecological and the social system (Arlinghaus et al. 2017). In such situations, we encourage scientists and managers to consider the more integrative approach of interdisciplinary research that is outlined in this book. Putting an interdisciplinary approach in place requires a shared research framework to encourage joint learning, the construction of research questions in a way that at least two disciplines have to work together to answer the question or questions, a clear and agreed-upon vision about how to synthesize knowledge streams and generally a willingness for co-creation of interdisciplinary knowledge by a team of researchers from different disciplines (Arlinghaus et al. 2014). Perhaps even stakeholders, such as local recreational fishers, and rights holders (e.g. Indigenous communities, but may include recreational fisher communities in some countries), need to be part of the research team, leading to transdisciplinary co-production settings (Arlinghaus et al. 2026), which further increases the demands on the research team. Such a complex setting requires a complex adaptive social-ecological system lens (Arlinghaus et al. 2017; Lynch et al. 2017) that encourages researchers from ecological science to work with social scientists, but it can also help to illustrate the potential benefits of looking at a problem from different social science disciplines and fields (Hunt 2023). What design to choose and what level of cooperation among scientists, managers, and stakeholders to aim at crucially depends on the research problem. Neither disciplinarity nor inter- or even trans-disciplinarity is panacea—what design and approach to choose depends on the fisheries problem or research question to solve and needs careful thought by those initiating the project.

Of course, understanding recreational fishers is a necessary component of fisheries management and decision-making. In many contexts, recreational fisheries decision-making is commonly top-down, with government agencies determining appropriate fishing practices, but this need not be the case. There are other cases where decision-making benefits from the integration of suggestions, knowledge, and the inclusion of stakeholders and rights-holders. Working with stakeholders can involve fishers along a continuum that may include no participation in the actual science or management, soliciting fisher feedback through surveys, or full co-management (Camp et al. 2026), similar to the ladder of participation that (Arnstein 1969) describes. Although there are cases where no stakeholder participation is warranted, such as where legal frameworks mandate top-down action, increasing participation from the project onset will lead to improved trust, acceptance, and a broader system perspective of all involved (Camp et al. 2026; Arlinghaus et al. 2026). It should be noted, however, that with greater engagement with fishers and other stakeholders comes the risk of negotiating different values, norms, and interests. Gaining stakeholder trust, building relationships, and integrating different knowledge sources through the process are difficult and time and resource-intensive. Further, some groups (e.g. Indigenous groups in North America) feel integration is insulting and prefer acceptance of multiple worldviews (Reid et al. 2020). Also, in joint processes, researchers and managers may need to accept that stakeholders will often have divergent perspectives and that these perspectives are equally valued as the more “academic” views if trust is to develop. Generally, non-academic knowledge must be treated as similarly valuable as academic knowledge, and stakeholder knowledge should be formally represented in knowledge gap identification or at the end of the project synthesis. Proper ways of integration and synthesizing are needed (Cooke et al. 2026), which can involve formal models or using principles of collective intelligence if we are dealing with large numbers of people (Aminpour et al. 2020).

Whereas there are obvious differences in the steps needed to initiate and achieve any of the above-mentioned example problems and questions, there are certain similarities, particularly when, as is often the case in practice, recreational-fisheries management is considered from an adaptive management perspective (Robinson et al. 2026). In its simplest form, passive adaptive management includes understanding the system, predicting changes to the system after an intervention such as a regulation change, implementing those changes while monitoring outcomes, and using monitoring data to learn and adapt the management intervention in the future (Robinson et al. 2026). In the active counterpart, management interventions are seen as system-level experiments and are planned a priori (Robinson et al. 2026). Both approaches involve gaining an understanding of the system from multiple perspectives, building interdisciplinary models to derive hypotheses a priori (Walters 1986; Jensen et al. 2026), ideally with the shared perspective and participation of all involved (Arlinghaus et al. 2026; Jensen et al. 2026), generating hypotheses or predictions of how to intervene in the system, intervening in the system, setting up a monitoring program, and collecting ecological and social data before and after, and perhaps with treated and controlled replicates across the landscape. Most of these

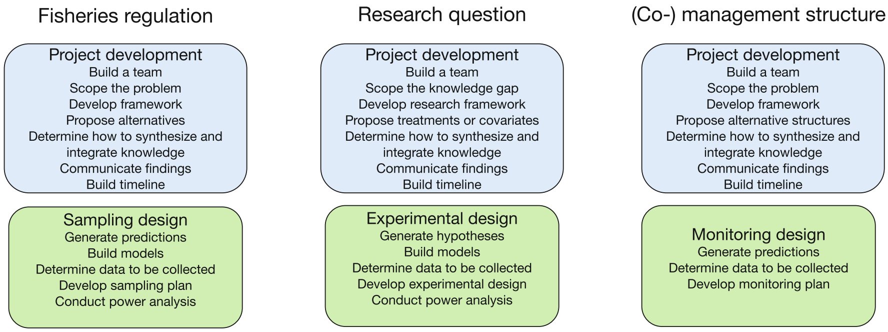

Fig. 1 Steps in implementing and evaluating different changes to the system (including making minor changes such as changing regulations, addressing a research question, or making a structural change to management, including implementing co-management; many of the steps involved are repeated across these scenarios, suggesting common strategies)

same steps are necessary regardless of whether one is imposing a regulation change, conducting a field experiment (Mee et al. 2016), or even considering restructuring the management responsibility of the fishery to include rights-holders or stakeholders (Fig. 1). In most cases, one will probably end up with the need to be interdisciplinary in such complex scenarios at the level of entire fisheries.

There are multiple overlapping stages of any interdisciplinary, or even transdisciplinary, stakeholder-inclusive endeavour. In the next section, we will describe them and their role in developing interdisciplinarity to illustrate how to achieve cooperation or integration of multiple disciplines to gain more holistic insights and understanding of the role recreational fishers play within a coupled social-ecological system. Although not all these stages will necessarily apply to all research or management projects, most are salient for any activity that may benefit from a diversity of viewpoints, approaches, and methods, including setting fishing regulations, developing a research question, or changing a (co)-management structure (Fig. 1). We consider the initial stages of any project to include project development, research framework design and designing the sampling or experimental program. But the reality of the specifics of a given project might deviate from the steps we outline, as it is extremely difficult to generalize to all situations.

2.1 Project Development

The initial task of developing almost any fisheries project involves the following steps:

1. Build a team as a collaboration among researchers from multiple disciplines, managers, stakeholders, and rights-holders.

2. Scope the problem being addressed by the team, including the concrete research questions.
3. Build a common research or managerial framework that is agreed upon by all.
4. Identify methods to address the various problems and questions.
5. Decide how to integrate and synthesize the various knowledge dimensions at the end of the project, again to be agreed by all.
6. Think and decide about a strategy of knowledge dissemination.
7. Create a project timeline and determine roles and responsibilities among the team.

When addressing a fisheries problem, the first step is to build a team involving multiple partners from across academic disciplines, and different perspectives of the system (fisheries managers, policymakers, stakeholders, and rightsholders). The diversity of perspectives provided by such a team can yield a variety of objectives, knowledge, and disciplinary approaches to developing, refining, and answering the questions to be addressed (Arlinghaus et al. 2026; Camp et al. 2026). To determine who should be part of the team, it is important to consider who interacts with the system and who would benefit or be impacted by the outcome of any research or system changes. If addressing management structure, it is crucial to proactively include proposed co-management partners immediately so trust and a collective understanding can be established. It is critical to think about balancing the team members such that it is not dominated by individuals from one disciplinary perspective or group, and to clarify the roles of each team member. If projects involve stakeholders, it may be necessary to encourage people to move beyond their "comfort zone" and be willing to listen and interact with people outside of their disciplines or with practitioners (Kelly et al. 2019, Arlinghaus et al. 2026). This is not for everybody.

The next step is to scope the problem or knowledge gap to be addressed with all team members as a group. There are several questions that one can ask to help understand the problem. *What are the goals and objectives of the system? What is the applied fisheries problem we seek answers about? Do we all see the same problem and if not, why not? What led us to this process? What is the primary research question or questions for which there is no accurate or recent, place-based information? Which group already has knowledge about these questions, what is the availability and robustness of scientific and non-scientific knowledge? If this information was available, can it be synthesized before new data are collected and used? Is information context-specific, suggesting there are broader questions that will colour results? Importantly, what are the logistical constraints, such as available budget and time, for this work?* These types of questions help the team to fully understand what approaches can and cannot be used to move forward, and importantly, nail down the knowledge gap the new project wants to fill.

Once a team is assembled and the knowledge gap identified, it is important that everyone can work well together throughout the project against a common procedural or operational framework that everybody agrees upon and wants to contribute to. It is especially important to take time to think about the system, gaps in understanding, and research questions that can best address these gaps through collaboration among diverse participants. These discussions are essential, often need to be personal, and they are key to building trust, respect, and mutual understanding among participants. The resulting project and research framework should be visualised, and the roles of each team member should be made clear and transparent within the framework (e.g. who contributes to aspect A of the shared questions, who to aspect B). It is important to be explicit and consider the values held by different people in the team. For interdisciplinarity, it is also instrumental to avoid disciplinary "arrogance" among team members, and similarly, scientists and stakeholders must feel respect so lasting relationships develop based on trust and mutual understanding. It is not uncommon that people trained in different disciplines are conditioned to reject knowledge that is generated using a different epistemology (Hunt 2023), and different disciplines respond to different reward systems (e.g. in which journal to publish, as sole author or as a team), which have to be negotiated and addressed. It is important to have at least one person on the team who is conversant in multiple disciplines to help each member understand the perspective of others (i.e. a "knowledge broker;" Arlinghaus et al. 2014). This knowledge or information broker can help to formulate a research framework that all participants buy into, guide discussions, and outline the synergies for different disciplines. Relations matter. It is thus particularly important to take the time and energy to have team members get to know each other both professionally and personally to break down barriers and enhance and importantly, secure collaboration in a process that can take many years to complete.

Once the team has a mutual understanding of the operating process, the next step is creating a research framework or system model that represents how the project team understands the managed ecological system (e.g. recruitment, angler harvest). Frameworks are a description of the most important presumed causal mechanisms, interactions, and feedbacks of a system (McGinnis and Ostrom 2014; Arlinghaus et al. 2016a, b) and the gaps that need to be addressed through the present research. The research framework should be related to the most important questions being addressed, and the team needs to devise appropriate methods to address different components of the fishery problem. Initially, all participants can suggest methods for addressing the problem, then the group can come together to discuss each and make final decisions. This is especially fruitful if there are strong differences of opinion because it allows each member to be heard and for the team to constructively debate each suggestion. Discussion within the team could focus on different perspectives of the problem or different sub-questions, which should help suggest numerous ways that team members can approach it. Getting a variety of options allows for creative solutions and potential for creating new tools that bridge disciplinary boundaries. Discussions about methods crucially depend on budgets and other constraints (e.g. project timelines, availability of sampling sites, availability of previous data sets, discussion on whether experiments are planned, or only observational data collected). If students are involved, feasibility becomes particularly important to complete student timelines, considering project demands.

Crucially, at this point of identifying input sources of information, it is very important to agree on an approach to synthesis of the various project components, such as how will disciplinary knowledge be integrated with stakeholder knowledge (Arlinghaus et al. 2026), or how will knowledge of discipline A (say resource economics) be integrated with discipline B (say fisheries ecology) to contribute to the project goals. Most collaborative multidisciplinary projects fail if they do not have a clear a priori strategy on how to synthesize across the various knowledge streams (Arlinghaus et al. 2014).

Planning how and where to communicate the findings of the project is also an important part of project development. This plan can include roles and responsibilities for team members with respect to communication and the process that will be used to recognize the contributions of team members on different communication products. Consider different outlets for communication, including news outlets, academic journals, social media, and communication back to broader stakeholder groups and the local public. By developing such a plan, potential issues related to who is privileged to communicate with media requests or to submit manuscripts have already been agreed upon by the team. All team members can contribute, review, and revise the plan. The plan may also provide some formal or informal way to assess the effectiveness of the efforts to communicate the project findings and be respectful of sensitive information, especially when stakeholders are involved. Effectiveness may be better measured through outcomes (e.g. measures of awareness of the project among a population of interest, new networks established among stakeholders and scientists) than through outputs (e.g. number of published papers). It is imperative to determine who leads each piece of communication and how all partners and stakeholders will contribute, and how to deal with the disclosure of possible sensitive information. An important conversation relates to recognition. For multi-authored communications, having an explicit discussion about who should be included as an author and a process to determine authorship order will prevent competitive behaviours or misunderstandings. These conversations may be more important to some researchers and partners than others, but being explicit will protect against problems later.

Finally, identifying roles and responsibilities for the team members and building a timeline will help to manage expectations for the team and build key deliverables to help keep the project on time. This timeline should include all components of the project, such as hypothesis generation, data collection, data analysis, writing, and communication, and who will lead each of these components. Some processes, such as redesigning a management structure, understandably will take months or years, and it is important that all members understand this reality. All team members should have appropriate time dedicated to addressing their component of the work and time to review other components to ensure there are no lags in the project that might impair the entire team. Importantly, the timeline should also include multiple dedicated opportunities for reflexive interactions. These communications help recommit all partners and stakeholders to the broader project questions and goals. These interactions also provide flexibility in the project in case certain tasks have problems or unexpected results. These can be seen as opportunities for partners and stakeholders to consider how to pivot in a way that further strengthens interdisciplinary collaboration and knowledge generation.

2.2 Sampling Design and Monitoring

Once the team establishes a framework for making decisions, addressing a knowledge gap, or restructuring management, it is important to generate hypotheses and predictions of how the system might respond to different changes to the system or the way it operates. These hypotheses should build on the interdisciplinary strengths and backgrounds of the project team. Each hypothesis should be brought to the team to see how it might support or contradict expectations from others based on their experience or disciplinary background. This might suggest a reconsideration of hypotheses, or creation of new hypotheses that consider multiple disciplinary perspectives.

Some researchers may choose to build mental or simulation models of the system and use these to generate plausible hypotheses based on prevailing (or competing) discipline-specific paradigms. Alternatively, models may be built to incorporate multiple disciplines, which helps to uncover uncertainties at the interface of these disciplines (Jensen et al. 2026). Models can also be built working with stakeholders and rights-holders to help understand their worldviews and use this experience to build additional predictions (Wilberg et al. 2026). Models may or may not be quantitative; they can be fully qualitative and conceptual. Models should be co-developed among all and shared among the research team for critique and discussion, which will enrich hypotheses or predictions of the model based on multiple perspectives and lived experiences. These predictions should open suggestions for how to monitor the system before, during, and after the proposed change or changes to the system occur, if experiments are designed. Predictions are equally relevant for designing fisher surveys or statistically analysing observational data. Fully integrative models may also be a synthesis tool and be used for experiments to study fish-fisher interactions (e.g. Hunt et al. 2013; Matsumura et al. 2019).

After the hypotheses are set, a sampling and analysis plan must be devised and implemented, which can involve experiments, surveys, analysis of past databases, and other approaches. Then, data need to be collected or experiments completed to determine if the proposed change or changes to the system are working in the ways predicted and to examine any hypotheses and predictions derived by the research team. If the system does not respond as expected, or if other deviations from expectations emerge, it will be easier to diagnose and adapt if data exist with which to infer where the information gap(s) exist. Identifying databases that are free and curated is critical here. Again, even if a new management structure is being proposed, thinking of this as an adaptive management experiment will help restructure thinking about the importance of data and monitoring (Robinson et al. 2026). Partners with different disciplinary backgrounds will have different suggestions on how to monitor the fishers and the fishery, and giving all consideration may broaden the perspective and encourage further engagement. This is an opportunity to identify efficiencies so that different perspectives of the fishery may be gained through the same data. In the end, although not all data collection strategies may be acceptable because of limits to time and resources or for ethical reasons, they should all be considered at this stage.

The models developed above will be useful in comparing different data collection strategies in a safe environment before any manipulation of the actual system occurs. Importantly, these models can be used to simulate all the ways the system might respond, and "data" can be gathered in the simulation model, which can then be analysed using different proposed approaches. Data analysis is not often considered until after the data are in hand, but the analytical approach should be established as part of the experimental design and will be a key factor in how data are collected. Models developed for quantitative approaches by the team provide an opportunity to evaluate and compare experimental designs and proposed analyses. Using a combination of simulation models and statistical tests or estimation models (where appropriate), the team can then evaluate how data collection scenarios directly influence the ability to detect trends in the population (Parkinson et al. 1988). This can be useful to determine if any necessary data were missed, or if some data are unnecessary to address the research questions. Qualitative projects necessarily require more flexibility; however, prior consideration is beneficial to ensure that the design is sufficiently flexible to adapt to themes that emerge from data, that the proper respondents will be included, and that the context will be set appropriately.

Power analysis can be performed on observational or experimental data, where analyses are repeatedly run on simulated data to determine the statistical power of the data collection process, or accuracy of parameter estimates (Kelley et al. 2003). Power analyses are ideally conducted using pilot data, which informs sampling variance (e.g. Parkinson et al. 1988). However, even without data, stakeholder knowledge is often invaluable for suggesting appropriate levels of sampling variation, which can provide a useful basis for comparing different data collection options. Of course, power analysis will only inform certain types of quantitative analyses, but, when possible, it is a powerful tool (Peterman 1990; Wagner et al. 2013). In qualitative studies, focus groups can serve a similar role, which can generate a wealth of prior information that can be used to develop coding schemes that work before the actual project and data generation start.

To better understand data collection processes using different methods, the reader is referred to the various chapters in this book.

3 Best Practices

This book covers many distinct aspects of working with and understanding recreational fishers. This understanding can come from traditional disciplinary perspectives and from interdisciplinary approaches. Here, we suggest some best practices to ensure that the knowledge gained is defensible, repeatable (as much as possible), and capable of being integrated into future work. We organize these suggestions into sections related to engaging fishers and knowledge integration.

3.1 Engaging Fishers

A lot of fisher engagement will come in the form of data collection, where the thoughts, perspectives, and actions of the broader fisher community will be sampled through, for example, a survey (Vaske et al. 2026a, b) or qualitative research (Kochalski et al. 2026). This is an important aspect of understanding fishers in general and will lay the groundwork for engaging fishers in higher-level decision-making or research. However, recreational fishers today are not only "informants," but engage with research and management through a variety of other collaborative formats and may be part of formal co-production settings where the boundaries among scientists and non-scientists blur (Arlinghaus et al. 2026). Engagement and trust are particularly relevant in such situations.

One may collect data from recreational fishers and their behaviours through a variety of means, including personal interviews, focus groups, semi-structured in-person interviews, on-site creel surveys, off-site surveys, text corpus analysis, mining digital sources or written text, public online databases or private databases (e.g. spreadsheets stored on hard drives), and field or laboratory experiments (Cooke et al. 2026; de Kerckhove et al. 2026; Golebie et al. 2026; Kochalski et al. 2026; Kyle et al. 2026; Post et al. 2026; Sievert et al. 2026; van Putten et al. 2026; Vaske et al. 2026a, b; Venturelli et al. 2026). Members of the project team will have varying thoughts on how to gather data, but careful discussion will help reduce the list of options to what the team can do to address the questions within the constraints of time and money, and respecting ethical issues of data collection. An especially important and increasingly rising consideration is about the personal boundaries that social science may cross. For example, respondents in surveys devote their time to answering what the researchers are interested in, and the researcher, in turn, has the sole power in interpreting the results. Difficult ethical questions are relevant here that one has to be aware of as a researcher because relationships to stakeholders may quickly break if stakeholders perceive that the social science results are breaching local custom or misrepresenting or disrespecting local culture and norms.

Choosing how to gather data from fishers is partly driven by the desired sample frame (i.e. the population of fishers from which to collect information) and the degree of individual- or population-level information collected. When, for example, the sample frame is fishing activity for particular waterbodies, an on-site (creel) survey is appropriate. When fishers across a region are of interest, interviewing current fishers will produce biased results, because active fishers will be over-represented, and occasional fishers may never be encountered. In this case, off-site surveys administered via telephone, mail, internet, or mixed modes are better suited.

Questionnaires can be administered using in-person, telephone, (e)mail, or other electronic modes. However, the means of contacting potential respondents and their representativeness of the population of interest (leading to coverage bias and possibly nonresponse error; Dillman et al. 2014; Vaske et al. 2026b) can be a real concern. If information about populations is gathered, researchers should ideally sample following some random process (i.e. a probabilistic sample), and participants should ideally be selected from complete sampling frames (i.e. no coverage error exists). If these sampling frames do not exist, quota sampling may be a solution, or researchers will need to invest effort to develop a sampling frame (e.g. from addresses from on-site surveys, if the population of interest is active fishers). Researchers are increasingly adopting mixed-mode surveys (where respondents can either choose to answer by mail or online) in part to try and rectify declining response rates to surveys of hunters and recreational fishers (Stedman et al. 2019). By allowing individuals to select their preferred mode for completing a questionnaire, it is believed that response rates should increase along with the quality of survey data (Hunt 2023). However, mixed-mode surveys are not a panacea (Millar and Dillman 2011), and they do not replace the need to follow standard practices and advice of experts when designing surveys (Dillman et al. 2014; Vaske et al. 2026a), constructing questionnaires (Dillman et al. 2014, Vaske et al. 2026b), and measuring key concepts through standard questions (Kyle et al. 2026). Furthermore, complementary to the standard off-site recreational fisher survey is to increasingly include experiments into survey design using principles from behavioural economics, such as nudges (see Mackay et al. 2026; van Putten et al. 2026). These experiments can, for example, help teams and other researchers identify cost-effective approaches to survey recreational fishers that trade off efforts to increase response rates against additional costs of implementing surveys (see Hunt 2023).

Another increasingly common approach for surveying is to place a survey online and encourage anyone to complete it (i.e. a non-probabilistic or convenience survey) or to rely on digital data only (Venturelli et al. 2026). Similarly, snowballing of respondents is common in qualitative research (Kochalski et al. 2026). Whereas this non-probabilistic sampling approach for surveying is useful to address specific questions or to contact hard to reach populations (Griffiths et al. 2010), this approach typically produces biased estimates (e.g. related to fishing avidity) for a population of interest due to selection biases (e.g. more avid fishers are most likely to complete the survey) and very low response rates (Howarth et al. 2024). In short, unless one has particularly effective ways of informed data weighing, non-probabilistic surveys cannot generalize to the population of interest, though there can be a strong temptation to do so. For example, a well-executed local snowball-based qualitative sample of recreational fishers will provide rich and detailed information on local discourse and even cause-and-effect reasoning by people, but it is impossible to generalize from this by designing a non-random sample to all recreational fisheries in a region. The same issue holds for quantitative convenience online surveys that are not weighted or otherwise bias-controlled. The researcher will need to properly frame their research results and clearly avoid population-level jargon in reports and papers. Generally, researchers may carefully think about how they will use the data from convenience surveys before using this “low cost” approach to collect data. There is potential for mixed-mode approaches where qualitative studies are used to inform a larger quantitative survey using probabilistic samples that may then provide more generalizable insights that hold across large populations of recreational fishers (Golebie et al. 2026).

The advent of the internet and the cost or absence of sampling frames of recreational fishers has increased the temptation of convenience sampling using internet surveys. Many such surveys are regularly released, to which people are invited through email lists or on social media. Many of these poorly designed surveys are created by people untrained in survey design, and these studies regularly enter natural science journals because reviewers may be similarly untrained in social sampling design. This issue has been raised long ago by human dimensions experts in recreational fisheries studies (Ditton 1996), but it continues to be a problem. In response, some leading biology-oriented journals have altered their policies and published papers calling for rigour in survey-based research (Kyle et al. 2020). Clearly, there is a large diversity of social science approaches to conservation and fisheries (Bennett et al. 2017), and thus sampling approaches differ. Independent of the tradition, carefully designing sampling, clearly understanding sampling units, and generalizing only to the population from which the sample originates is critically important for the robustness of our science.

A less common, but scientifically strong, method for understanding recreational fishers and their behaviours is to conduct experiments on recreational fishers and fisheries. Experiments have stronger inference than observational studies because variables of importance are actively manipulated and outcomes are compared against counterfactuals, which create stronger estimates for establishing causal pathways and impacts (Poteete et al. 2010; Janssen et al. 2010; see van Putten et al. 2026). This is especially valuable in social-ecological systems with many feedbacks. Fisher behaviour may be experimentally evaluated using revealed or stated preference approaches in surveys (see Melstrom et al. 2026) or using behaviours in direct response to treatments (van Putten et al. 2026). Revealed preference studies are used to explore how fishers make decisions across a range of natural or purposefully altered gradients in variables of interest. However, the lack of experimental methods used in the vast majority of revealed preference studies leads to the production of only associations that might not reflect causation between behaviours and variables of interest. Stated preference methods avoid this problem by using experimental methods to design hypothetical scenarios from which respondents choose a preferred alternative. Of course, stated preference outcomes may be biased as hypothetical or intended choices might differ from actual choices (see Melstrom et al. 2026; Landon et al. 2026). Many drawbacks of each method may be overcome by using combined revealed and stated preference models (Ben-Akiva and Morikawa 1990), multi-model inference, or Bayesian methods. Importantly, however, experiments can also be completed in the field at the system level, for which there are excellent examples in the recreational fisheries science (Stoop et al. 2012; Fujitani et al. 2017). For observational data, statistical methods of the field of causal inference should increasingly be used, which include clever ways of distilling cause-and-effect from natural experiments and other statistical approaches (Gangl 2010; Fujitani et al. 2012).

Finally, though it is often best to interact directly with the fishing public to understand their actions and motives, it is possible to instead gather the required information using existing sources of data. These may include archived information such as magazines, peer-reviewed publications, government documents, oral history, or broad-scale contemporary data that one can mine for useful information (Kochalski et al. 2026; Thurstan et al. 2026; Cooke et al. 2026). Historical information allows current social norms to be put in the context of their origins. New methods in digital data analysis from a field now called culturomics allow changes in attitudes and behaviours to be assessed and documented (Lennox et al. 2022; Thurstan et al. 2026). Alternatively, contemporary information such as digital data from fishing apps or websites is often focused on behaviours and outcomes (e.g. locations fished, species caught, gear used) rather than values or attitudes (Venturelli et al. 2026). Peer-reviewed and non-reviewed documents may be collected and analysed to gain broad insights into increasingly detailed processes related to angler motives and actions; specific guidelines for distinct levels of evidence synthesis and their analysis can help ensure appropriate rigour (see Cooke et al. 2026). Each of these options provides a wealth of information from which to better understand fisher values, behaviours, and motivations.

The wide variety of approaches available also suggests that many opportunities exist to combine approaches. Taking several approaches to understand the system provides a more complete understanding of the nuances within the system, while also providing opportunities for efficiencies in data collection. For example, can experiments be combined with outcomes from probabilistic surveys? Can a more complete understanding be gained by combining quantitative and qualitative data and data collection? There are multiple ways to engage in this mixed-modes approach to data collection and interpretation, each of which has different benefits and constraints (Golebie et al. 2026). This interweaving of approaches represents a crucial step forward for interdisciplinary collaboration and exploration of systems.

An alternative to collecting data is to actively co-produce knowledge among stakeholders and scientists. In the most elaborated variant of co-production, stakeholders become research partners (Arlinghaus et al. 2026). For co-production processes to work, scientists and stakeholders need to develop a trustworthy working relationship and design multiple phases to reflect on intermediate results so as to be adaptive to change routes of actions as new knowledge emerges. Transparency is key, as is a commitment to respecting each other and to not misusing information without consent. This also holds for publications. Importantly, for co-production to work, scientists must rethink their role, accept that stakeholders and their norms are equally important as the researcher's interest and values, and consider the research process as a truly two-way interaction where learning is pursued together. Whereas this is a delicate process when working with any stakeholders in this way, demands are particularly crucial when working with rights-holders. Although not all projects will demand or are suitable for co-production, if co-production is chosen, the research process can benefit from four phases: (1) listening to each other, (2) identifying common grounds and disagreement, which is often assisted by conducting probabilistic surveys, (3) collecting, analysing, and interpreting new data together, and (4) evaluating the entire process of co-production at multiple stages (Arlinghaus et al. 2026). Like many processes mentioned in this book, although co-production requires a commitment from all participants, the potential benefit to better understand recreational fishers is often well worth the effort and can result in better joint understanding of a topic through principles of collective intelligence (Arlinghaus and Krause 2013).

Today, especially in North America, researchers and managers often use creel interviews to gather on-site data on fisher catch and effort. Some surveys have continued for many years, either on a particular lake or in a particular region, providing a rich and extensive time series of data (de Kerckhove et al. 2026). Most surveys are conducted on a small scale, yet fisheries extend over larger geographic areas as fishers may travel extensive distances across regions and borders to fish (Martin et al. 2015). By standardizing these data, they can help examine new, broader questions (Sievert et al. 2026) and contribute to evidence-based syntheses such as meta-analyses (Cooke et al. 2026). This is particularly helpful given the expense of conducting creel surveys—giving them a second opportunity to contribute to broader inference that generates added value.

Whatever mode of data collection is used, one needs to follow norms of standardization and data reporting (Sievert et al. 2026). Similar to how the study of lake fish ecology benefitted from the use of standardized gill net sampling (Hansen et al. 2023; Giacomini et al. 2020), the field of human dimensions will benefit from standardization in survey formats and measurements scales, which includes data reporting and making datasets publicly available in an anonymous fashion. For example, survey researchers should agree on a standardized way of measuring various concepts of relevance in recreational fisheries studies, such as specialization, catch-orientation, motives and other, should apply the same scales whenever possible (e.g. see Kyle et al. 2026) in various surveys using the same question wording and answer scales. Data made publicly accessible facilitates evidence synthesis techniques that examine common patterns across recreational fisher populations (Cooke et al. 2026).

We end with something obvious, but often forgotten: within any given study, researchers must take due diligence to report basic research design (e.g. year of study, population of interest, sample statistics including sample sizes, sampling units, variances, and means as well as providing transparent information on survey formats, items lists, and construct reliability; Hunt et al. 2019). Standard reporting facilitates future integration into larger databases (Sievert et al. 2026) and potential meta-analysis (Cooke et al. 2026). Researchers and managers would be well served to consult with human dimensions researchers and adhere to survey standards and measurement scales as documented in this book and elsewhere (e.g. Dillman et al. 2014). We also do not talk further about the specific statistical and other methods that need to be followed, given that the literature is replete with directions and the methods are constantly developing. It is in researchers' best interests to follow the discipline-specific standards, but also to get inspired when applying solutions developed in a specific field (e.g. econometrics or psychometrics) and apply them to their own data sets. This demands open eyes and reading in different disciplines to learn about the newest technologies available to analyse complex recreational fisheries data sets. Many methods and tools that are mentioned in textbooks to analyse social science data with proprietary software (e.g. Vaske 2019) are today also possible in the open-access computing language.

3.2 Knowledge Integration

Especially in interdisciplinary projects, but also in co-production activities, knowledge harmonization and integration are key. This integration can happen in a number of ways: integrating diverse views and perspectives, integrating different disciplinary epistemologies, or integrating knowledge generated through a number of approaches or over time.

Knowledge integration and harmonization, both among stakeholders and scientists, or among scientific disciplines, can be facilitated through participatory modelling in workshop settings (Ehrlich et al. 2023; Wilberg et al. 2026) or other ways of devising models that integrate across disciplinary boundaries. This has been traditionally challenging as integrated models (bioeconomic or social-ecological systems models) are rarely true collaborations where two or more components are equally detailed and grounded in theory (Jensen et al. 2026). However, models can be an excellent synthesis tool, by providing a boundary object in which different knowledge streams inform different areas of the coupled model. Ideally, the development of all components, which should at least include fish and fisher dynamics, should each be developed by experts who each engage in careful, respectful, and continuous communication with one another. In a perfect world, the general model structure is devised at the start of the project, and parameters are developed or informed as the project unfolds and empirical data are collected. In that way, models are excellent synthesis opportunities for interdisciplinary cooperation, where each discipline contributes critical pieces. Model parameters can also integrate stakeholder knowledge (Ehrlich et al. 2023). Continued communication about model performance and uncertainties is the key to developing multiple parts that can easily and seamlessly work together. As with all models, minimizing complexity where possible may yield clearer results to general questions, although the level of detail should be based on the question being addressed (Jensen et al. 2026).

Participatory modelling is a special case of integrated model building and allows models to be built through discussions and collaboration with fishers. Here, problem-solving is achieved through the act of building models collaboratively with a team of fishers, managers, modellers, and decision-makers (Wilberg et al. 2026). This process helps to organize knowledge into that which is known and unknown, which may further lead to defined experiments, management strategy evaluation (Punt et al. 2014), or even adaptive management of the system (Walters 1986; Robinson et al. 2026). These models may involve building an understanding of different components of the social-ecological system or include the full integration of these different sub-models (Jensen et al. 2026). Building models with recreational fishers is challenging because of the need to keep fishers motivated, engaged, and valued, but it is possible (Ehrlich et al. 2023). This includes general suggestions such as using accessible language, developing visualizations, communicating model limitations, and fully evaluating participant information whenever possible (Wilberg et al. 2026). However, it also involves careful discussions regarding uncertainty, which stakeholders can find uncomfortable. Wilberg et al. (2026)

suggest instead framing discussions as the risk of exceeding unwanted thresholds. Finally, validating models is important and necessary to demonstrate the plausibility of models. In areas where models do not match expectations, it is important to learn why this occurs and consider revising the model. This process, like many involving knowledge integration and stakeholders, can take many meetings over months or years. It is important to remain realistic about expectations and timelines and maintain strong and respectful communications throughout the process.

The initial purpose of integrating knowledge is often to better understand fishers and the fishery overall, which enables better problem framing and ultimately improves management decision-making. However, some issues and decisions are hindered by large uncertainty in one or more processes, where "if you knew more, you might make a different decision" (Runge et al. 2011). This is an ideal situation for starting a co-production process where different disciplines, or science and society, collaborate to solve the critical uncertainties, for example, via adaptive management (Robinson et al. 2026). Adaptive management processes should necessarily involve fishers, who are impacted by, and may benefit from, the outcome of these processes. When fishers are included as partners in the adaptive management process, learning is enhanced by all parties (Fujitani et al. 2017). It should be noted that active adaptive experiments to learn about fisher behaviour or their intentions are rare (but see Mee et al. 2016, Fujitani et al. 2017), yet are an important source of reducing uncertainty in any decision process or to get answers to difficult fisheries questions that are controversially discussed. We emphasize that adaptive management is challenging to fully implement because of the long-term horizons and resources required; for this and other reasons, such experiments are often stopped prematurely or fail to deliver on the initial questions (Walters 2007). Therefore, it is important to fully partner with decision-makers, fishers, stakeholders, and rightsholders over a lengthy period and see adaptive management as a knowledge generation and integration process. Further, strong leadership and long-term resources are essential to success.

The final axis of knowledge integration is to relate knowledge currently being developed to knowledge in other areas or over time. This argues for data standardization, where the ways in which data are collected and stored are consistent. Although data standardization is valuable on its own, it is often seen as a critical component to data management that involves collecting and storing data, so that they are available for others to use. Data collected and documented, ideally in publicly and openly available databases, using the FAIR principles of data curation (Findable, Accessible, Interoperable, and Reusable; Wilkinson et al. 2016), are more useful in future research by others. Sievert et al. (2026) provide examples of how data standardization works for creel surveys, but these same principles apply to other collected data. This also demands a need for careful database creation, which helps structure data collection, but also helps reduce errors and redundancy across tables and researchers. Critically, knowledge integration will be massively improved if data sets generated locally and regionally become widely available, to allow large data synthesis projects in recreational fisheries to the same degree they exist in other fields of environmental science. This is currently a major shortcoming and generates incentives to waste a lot of time for no reason and not be able to generalize. For example, publicly publishing all data sets of angler surveys would be a major stepping stone for comparative analysis. The same holds for catch-and-release or management data, which would allow comparative analysis of key patterns that exist across regions or even globally.

4 Charting a Path Forward

Although it is not always necessary to address a fisheries problem with an interdisciplinary or transdisciplinary approach, this book provides ample evidence of the benefits these approaches will bring. Here we briefly summarize some of the key lessons to learn to move towards a more integrated approach in understanding recreational fishers to improve fisheries management.

The first is that interdisciplinarity demands a common framework for how to structure our beliefs on the fishery and the role that fishers play in it. We suggest viewing recreational fisheries as social ecological systems, which allows for explicit consideration of one or more groups of fishers, one or more populations or species of targeted species (fish and invertebrates), and potentially one or more management authorities (Lynch et al. 2017). Building this framework for any particular fisheries problem requires integration of disciplines that specialize in understanding dynamic interactions within aquatic ecosystems and one or more disciplines that specialize in understanding cognition and behaviour of humans and governance institutions, and greatly benefits from non-scientists who have lived experience in the system. The different disciplines involved often have different epistemologies (Hunt 2023), and there may be an "us versus them" attitude between scientists and non-scientists. Breaking down barriers between individuals and mental models requires a certain humility on the part of team members. The best approach to humility is to have an open mind to how different people view legitimate knowledge, which will help ease tensions and create opportunities for innovative ideas and approaches.

The second lesson is that although new interdisciplinary methods will develop and improve our understanding of recreational fishers from multiple perspectives, they should not necessarily replace traditional methods and data. New methods will only supplement and expand the quality of these metrics and data. Traditional methods and approaches, described in the second section of this book, have a rich history and will continue to inform our understanding of fisher values and behaviours. The desire to create new interdisciplinary approaches should not supplant continued research in each of the component disciplines.

Finally, it is important to view the knowledge and data gained from any research on recreational fishers as contributing to a broader understanding. Therefore, the value generated from any study or intervention should be seen as a long-term investment. That value is enhanced by using standardized methods and storing (and disseminating) data in publicly available databases (Sievert et al. 2026), which can then contribute to future evidence synthesis (Cooke et al. 2026). Further, investing in continually developing social capital among researchers and those invested in the system—stakeholders and rights-holders—will lead to continued research opportunities from interdisciplinary and co-management perspectives.

The study of recreational fishers and recreational fisheries social-ecological systems more generally has been limited by a distance between disciplines that should be working together (Fenichel et al. 2012; Solomon et al. 2020). The tools and suggestions provided in this book provide opportunities to break down barriers between disciplines and between researchers and stakeholders, which should lead to the development of novel interdisciplinary or transdisciplinary tools and projects. It is our sincere hope that this book helps take the first steps in this journey.

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